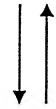
FIG.1

[SEQ. ID NO: 3] X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C 5'

G-G-A-A-C-T-C-T-A-A-G-G-G-A-G-X
[SEQ. ID NO: 4]



X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C G-G-A-A-C-T-C-T-A-A-G-G-G-A-G-X

FIG.2

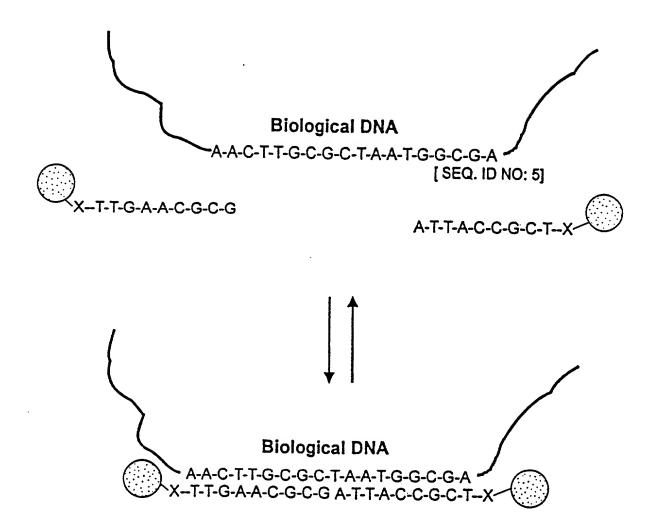
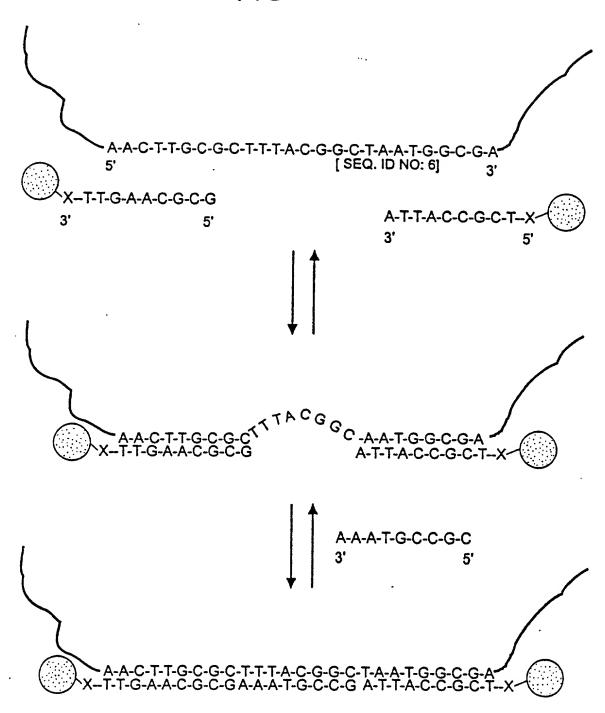
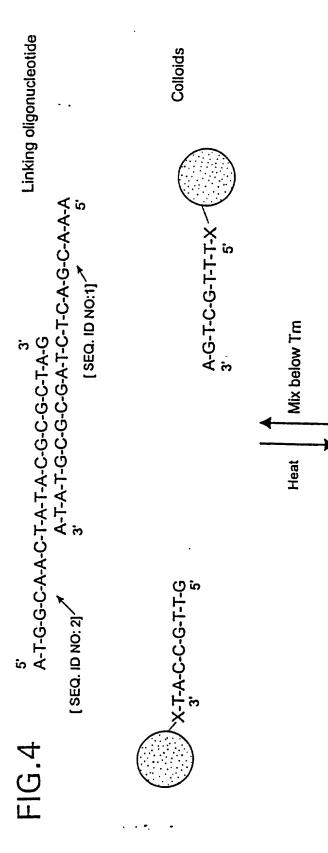


FIG.3





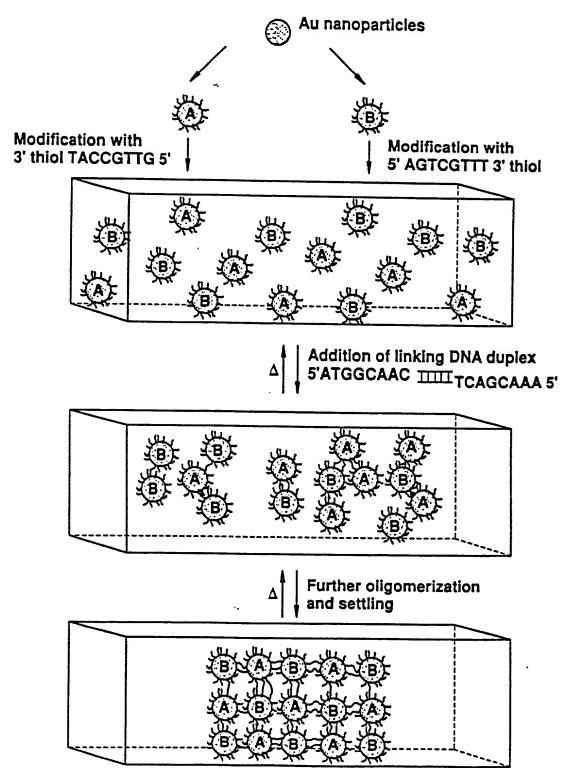
Precipitate (formed by further cross-linking)

Stand below Tm

Heat

Aggregate

FIG.5



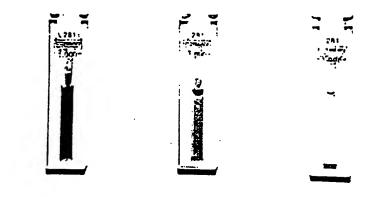
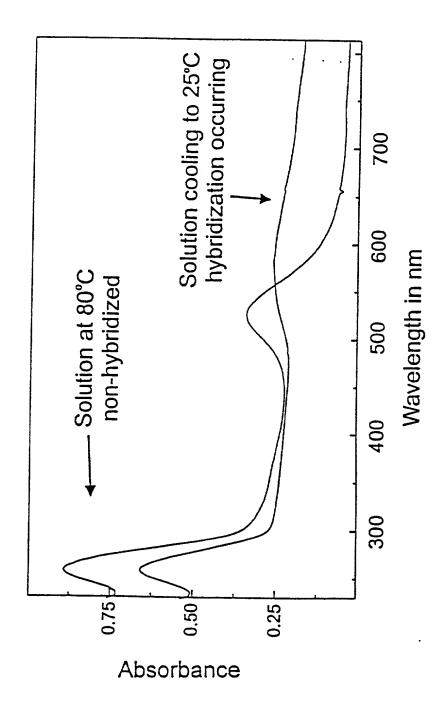


FIG.6A FIG.6B FIG.6C





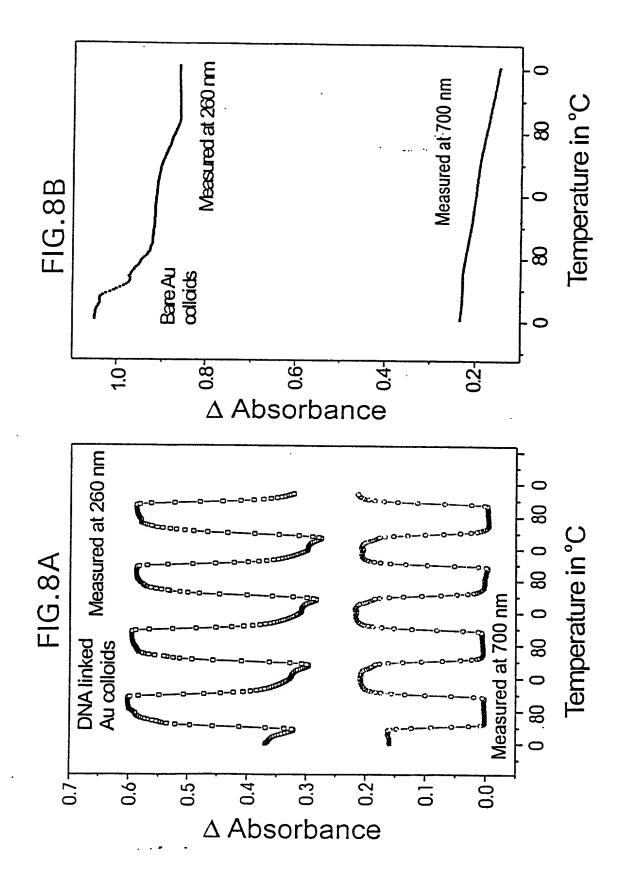




FIG.9A

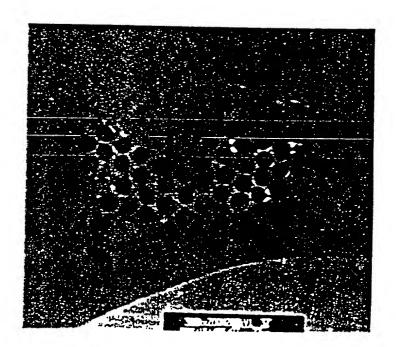
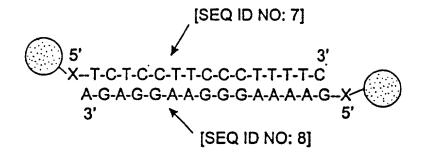
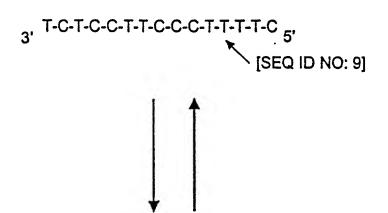


FIG.9B

FIG.10



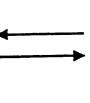


5' 3' X-T-C-T-C-C-T-T-C-C-C-T-T-T-C A-G-A-G-G-A-A-G-X 3' T-C-T-C-C-T-T-C-C-C-T-T-T-C-5'

FIG. 1

SEQ. ID NO:10]
s-A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G-A-G-T-C-G-T-T-T
5'
3'

| [SEQ. ID NO: 11] T-A-C-C-G-T-T-G-A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-G-A-A-S-(



T-A-C-C-G-T-T-G-A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A-'s-A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G-A-G-T-C-G-T-T-T

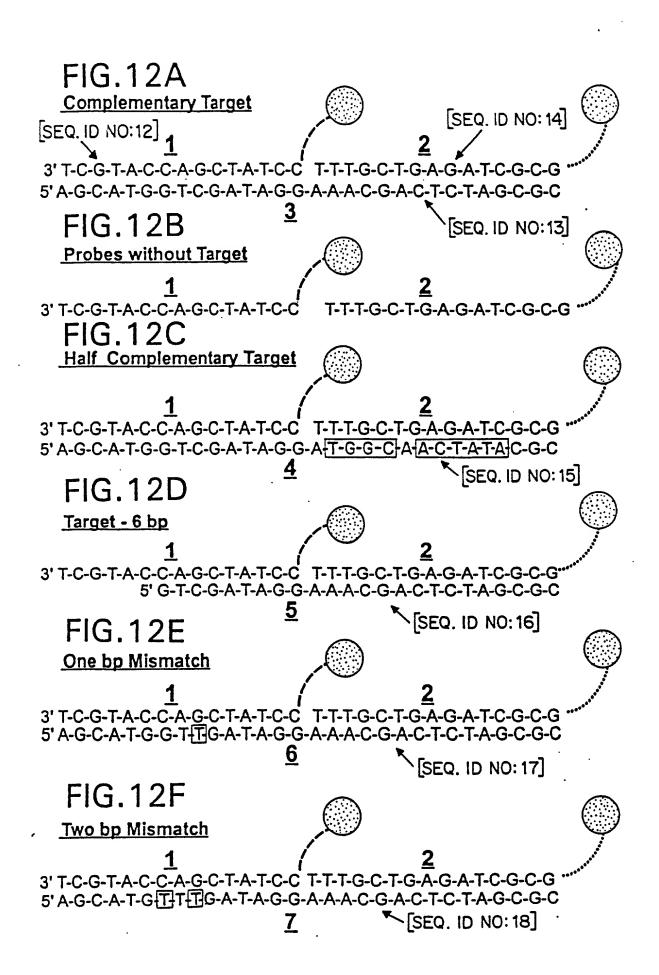
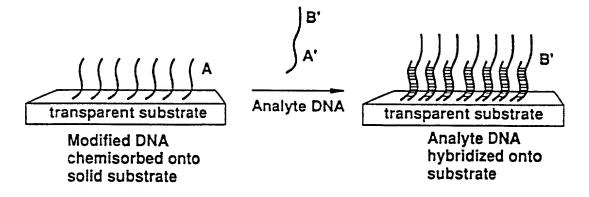
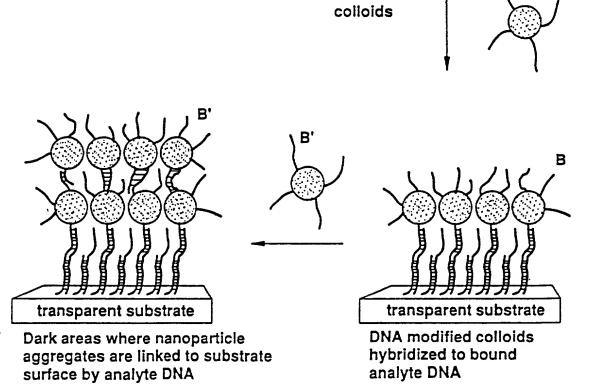
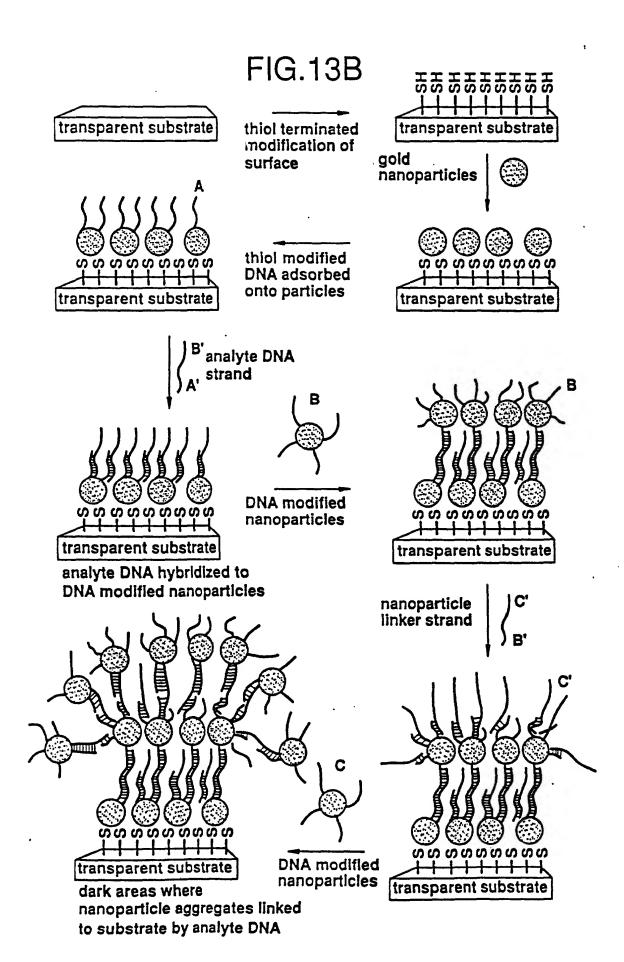


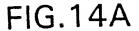
FIG.13A





DNA modified





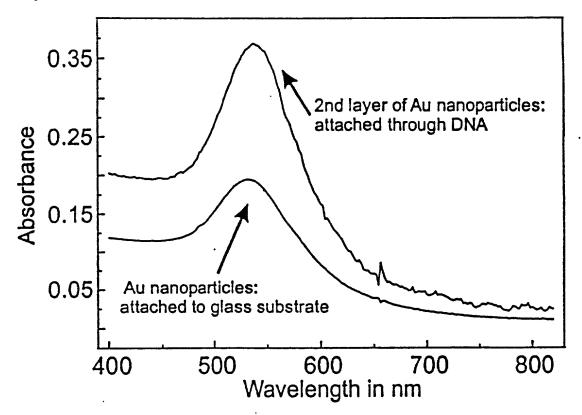


FIG.14B

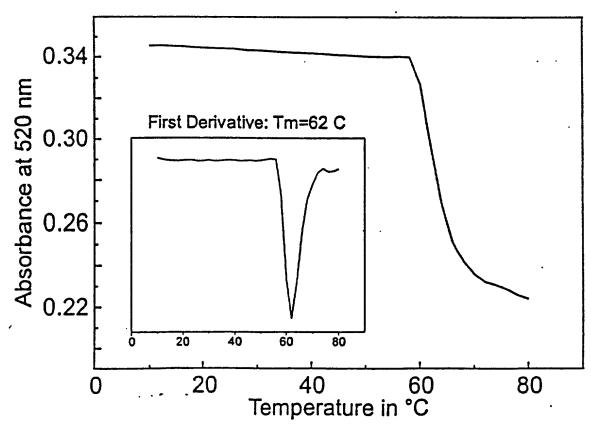


	FIG15A	_ SEQ ID NO:19	
_	Probes with No Target		D NO:20
(S-ATG-CTC-AAC-TCT TA		
	FIG15B	-	
	Half-Complementary Target		
•		SEQ ID NO):21
_	5' TAC-GAG-TTG-AGA-GA		
	S-ATG-CTC-AAC-TCT TA	_	
	FIG15C ⁺	<u>2</u>	•
	Complementary Target	Tm=53.5°C	
•	4	5	SEQ ID NO:22
	5' TAC-GAG-TTG-AGA-ATO		
	S-ATG-CTC-AAC-TCT TAC	_	
ت		<u>2</u>	
	FIG15D	- · · · · · · · · · · · · · · · · · · ·	- F0 400 l
•	ONE Base-Pair Mismatch at		1=50.4°C
	5' TAC-GAG-TTG-AGA-ATO	_	ID NO:23
_	S-ATG-CTC-AAC-TCT TAG		
	Y		
	<i>.</i>	<u>2</u>	
ت	FIG15F		<u></u>
ت	FIG15E ONE Base-Pair Mismatch at	Tm=46.	2°C
<u>.</u>	FIG15E ONE Base-Pair Mismatch at	Tm=46.	2°C SEQ ID NO:24
	ONE Base-Pair Mismatch at 6 5' TAC-GAG-TTG-AGA-CTC	Probe Tail -CTG-AAT-GCG 3'	
	ONE Base-Pair Mismatch at 6 5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S	
	ONE Base-Pair Mismatch at 5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1	Probe Tail -CTG-AAT-GCG 3'	
	ONE Base-Pair Mismatch at 6 5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S	SEQ ID NO:24
	ONE Base-Pair Mismatch at 5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG 15F ONE Base Deletion	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S 2 Tm=51.	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F	Tm=46. Probe Tall -CTG-AAT-GCG 3' -GAC-TTA-CGC-S 2 Tm=51.	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 7	Tm=46. Probe Tail C-CTG-AAT-GCG 3' C-GAC-TTA-CGC-S 2 Tm=51.	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 5' TAC-GAG-TTG-AGA-ATC	Tm=46. Probe Tail C-CTG-AAT-GCG 3' C-GAC-TTA-CGC-S 2 Tm=51.	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 5' TAC-GAG-TTG-AGA-ATC S-ATG-CTC-AAC-TCT TAC 1	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S E-GAC-TTA-CGC-S SEQ ID NO C-CTG-AAT-GC 3' G-GAC-TTA-CGC-S	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 5' TAC-GAG-TTG-AGA-ATC	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S E-GAC-TTA-CGC-S SEQ ID NO C-CTG-AAT-GC 3' G-GAC-TTA-CGC-S	SEQ ID NO:24
	5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 5' TAC-GAG-TTG-AGA-ATC S-ATG-CTC-AAC-TCT TAC 1 FIG15G ONE Base-Pair Insertion 8	Tm=46. Probe Tall C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S E-CTG-AAT-GC 3' G-GAC-TTA-CGC-S E-GAC-TTA-CGC-S Tm=50.2°C	SEQ ID NO:24 6°C 0:25 - SEQ ID NO:26
	ONE Base-Pair Mismatch at 5' TAC-GAG-TTG-AGA-CTC S-ATG-CTC-AAC-TCT TAC 1 FIG15F ONE Base Deletion 5' TAC-GAG-TTG-AGA-ATC S-ATG-CTC-AAC-TCT TAC 1 FIG15G ONE Base-Pair Insertion	Tm=46. Probe Tail C-CTG-AAT-GCG 3' G-GAC-TTA-CGC-S E-CTG-AAT-GC 3' G-GAC-TTA-CGC-S E-CTG-AAT-GC 3' G-GAC-TTA-CGC-S C-CTG-AAT-GC-S E-GAC-TTA-CGC-S C-CCT-GAA-TGC-G 3'	SEQ ID NO:24 6°C 0:25 - SEQ ID NO:26 3'

FIG. 16A

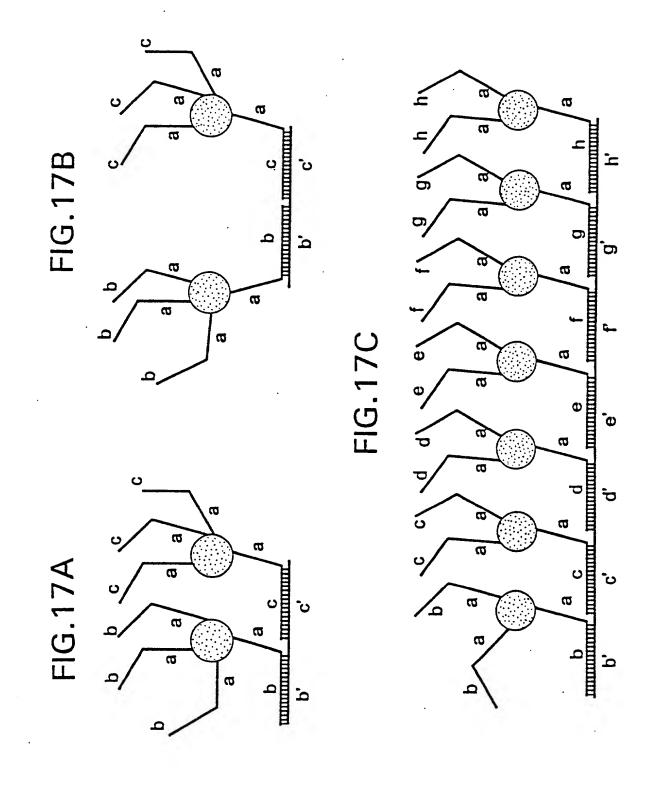
24 Base Template

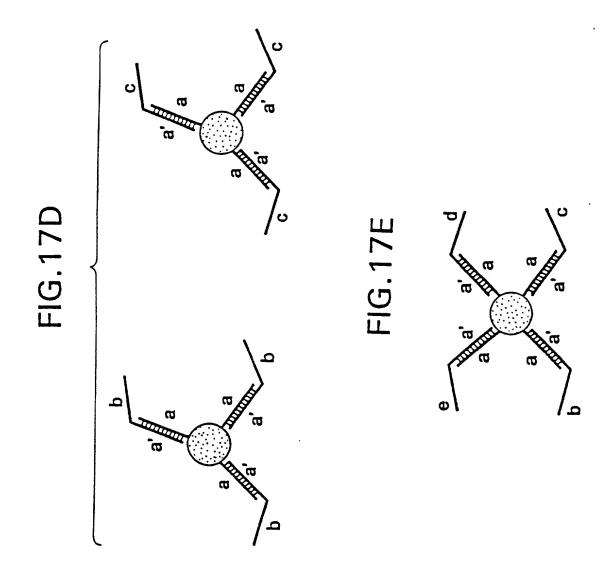
48 Base Template with Complementary 24 Base Filler FIG. 16B

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'

72 Base Template with Complementary 48 Base Filler FIG.16C

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGC-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'





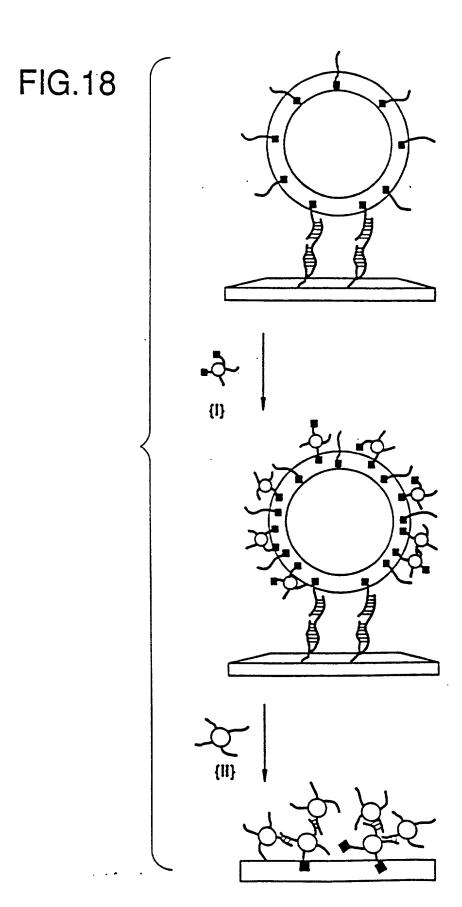


FIG.19A

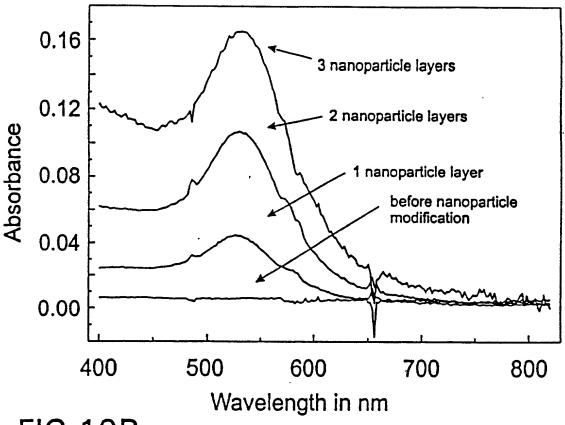
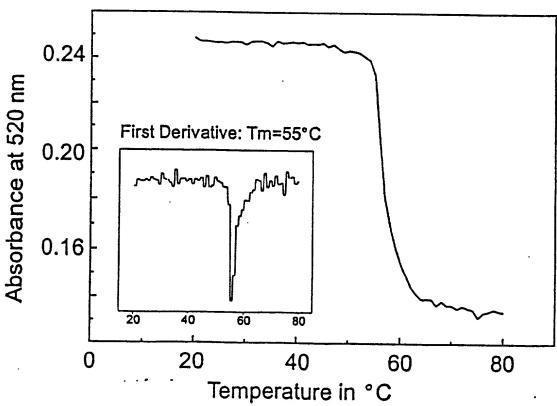
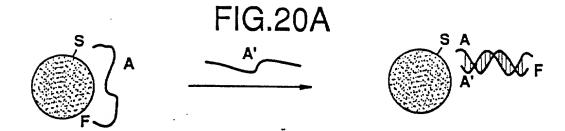
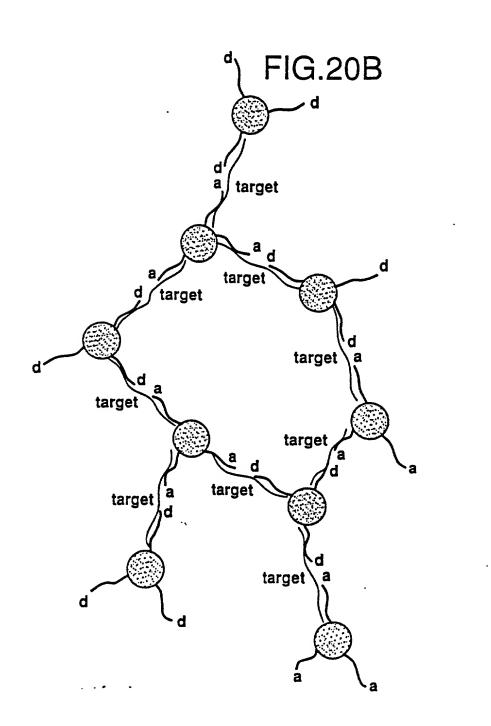


FIG.19B







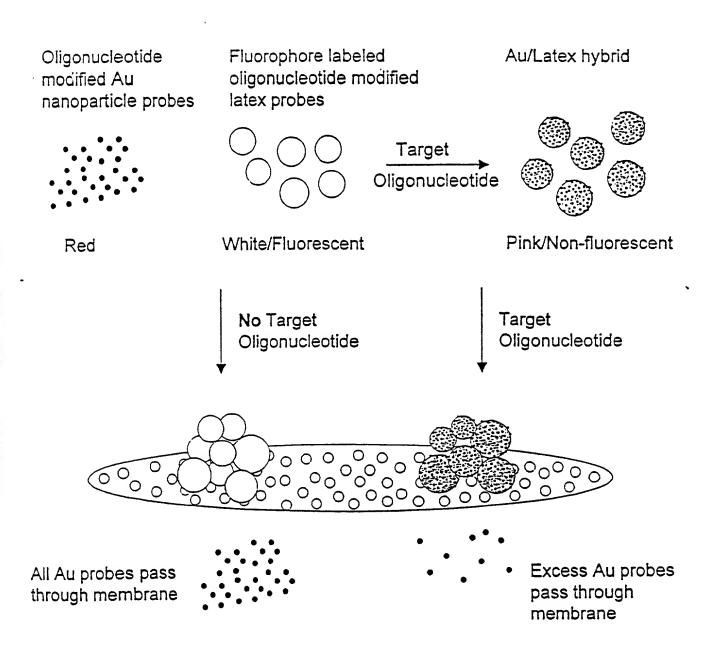
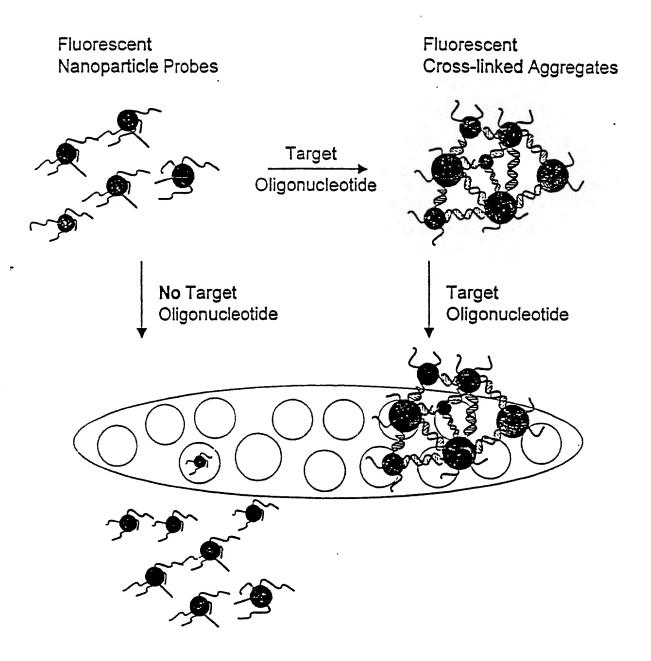


FIGURE 21

FIGURE 22



The fluorescent nanoparticle probes pass through the membrane

The fluorescent cross-linked aggregates are retained by the membrane

Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT 3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA <u>GAG GGA TTA TTG TTA</u> <u>AAT ATT GAT AAG GAT</u> ATA AGA AAA AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3' TAT AAT AGG TCC CAA TAT, AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

141 mer Anthrex PCR product [SEQ 10 NO:36]

3' CTC CCT AAT AAC AAT

ID NO:37] [SEQ

3' TTA TAA CTA TTC CTA IP NO: 38] [SEP

Oligonucleotide-Nanoparticle Probes

Blocker Oligonucleotides

TPE:04 41 [SE Q 3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT [04:04 di [SEQ 3' A TCT CTT CAT TAA TTA AGC AGT TGT [14:04 di 3' TAT TCT TTT TAT AAT AGG TCC CAA TAT [SFQ [54 :04 di 3' AAC ATC TIT AAC TIC TAT GAC TIC CCG AA [SEQ

FIGURE

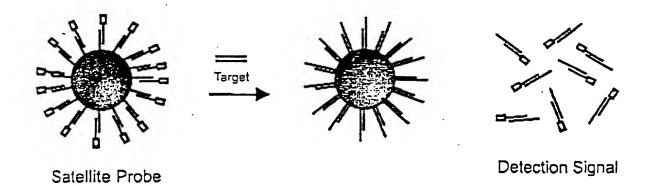


FIGURE 24

1. (target)

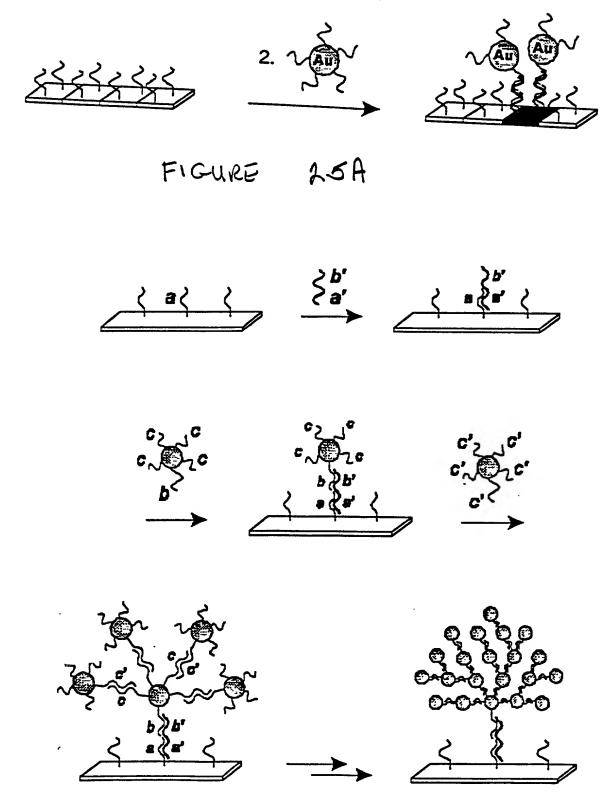
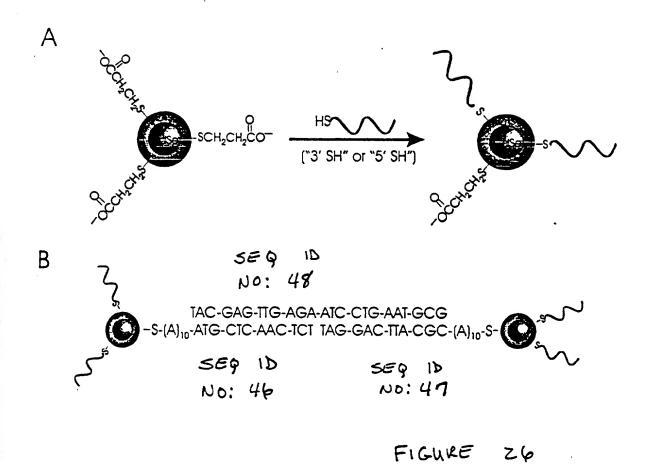
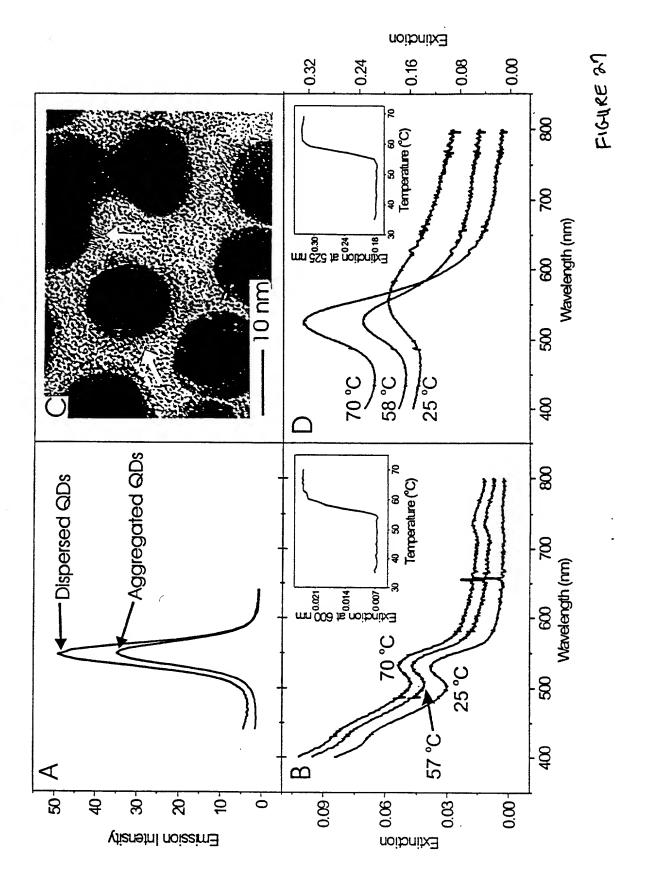


FIGURE 25 B



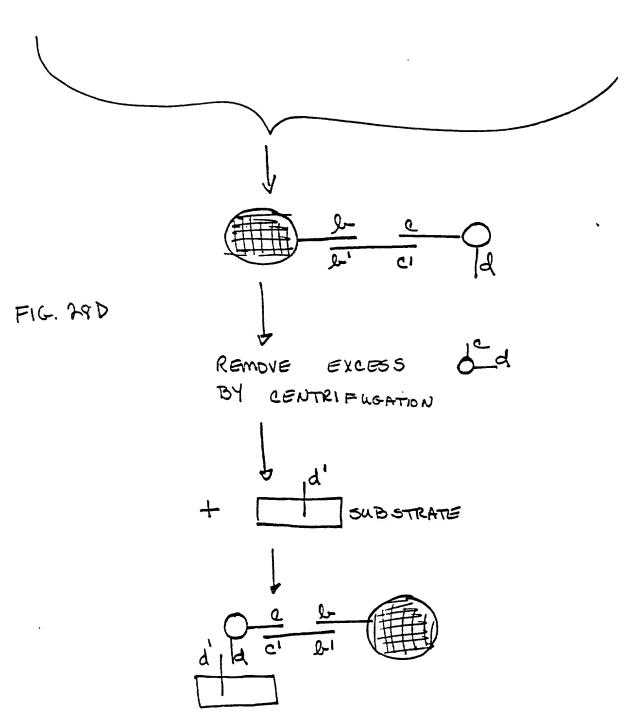


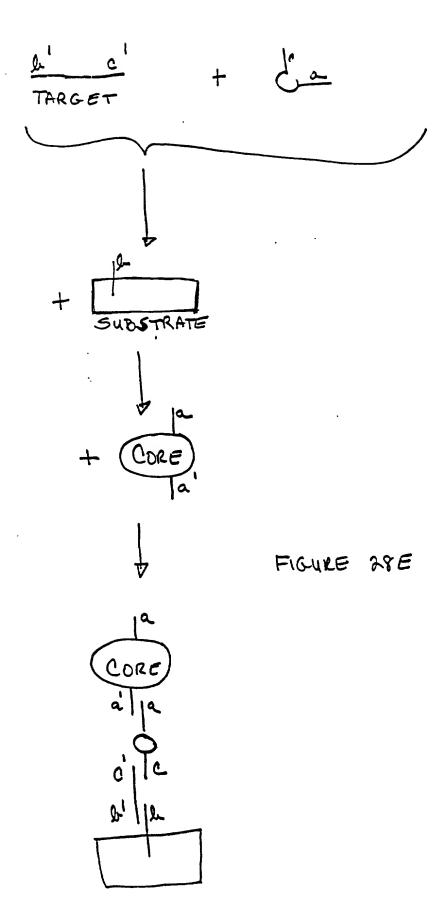
$$\frac{a + \frac{a'}{a'} \frac{a'}{a'}}{1a'} \longrightarrow 0$$

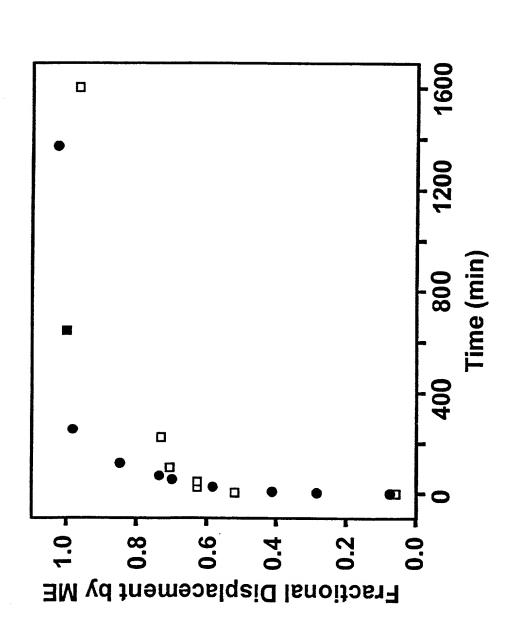
FIGURE 28A

FIGURE A8 B

FIG. 28C







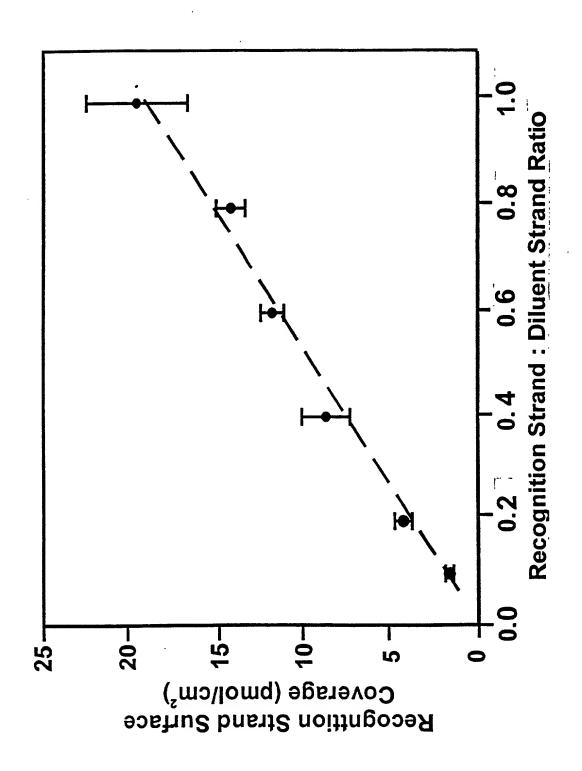
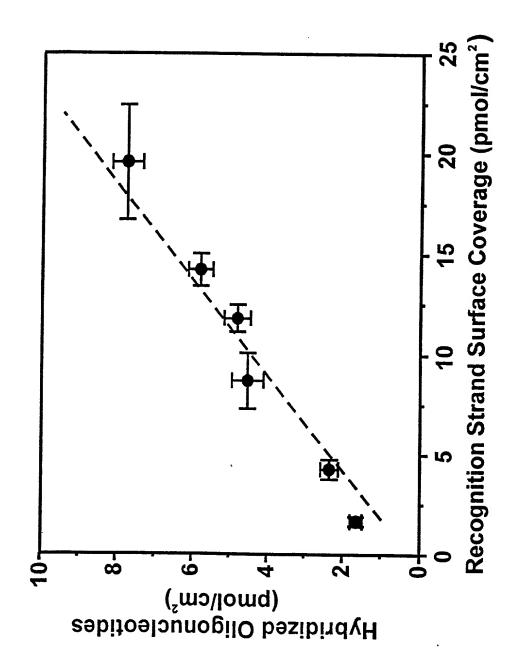


Figure 30



[SEQ ID NO:56] 5' GGA T**T**A TTG TTA---AAT ATT GAT AAG GAT 3' CCT ANT AAC AAT TTA TAA CTA TTC CTA [SEQ ID NO:58] [SEQ ID NO:57] N = A (complementary),

G,C,T (mismatched)

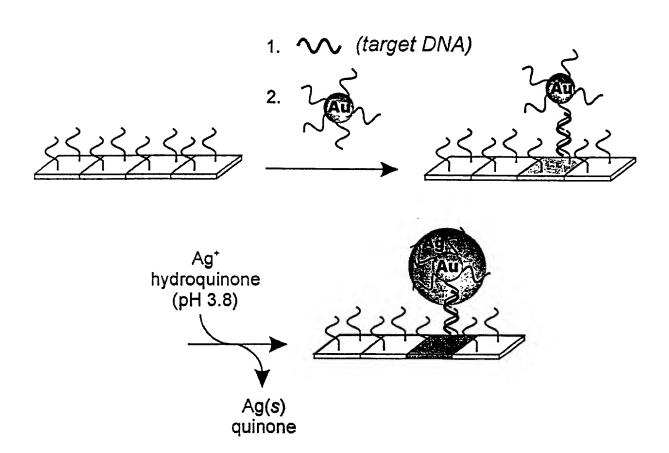


Figure 32

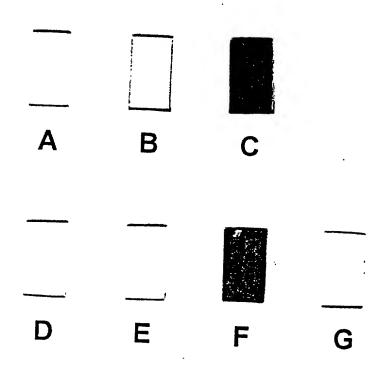


Figure 33

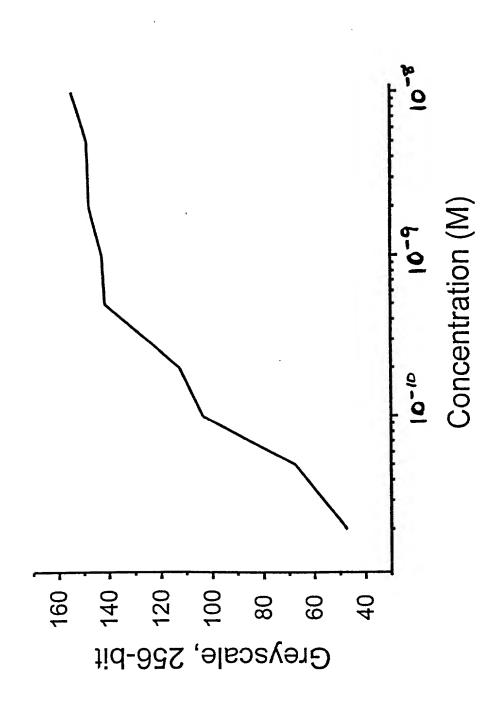


Figure 34

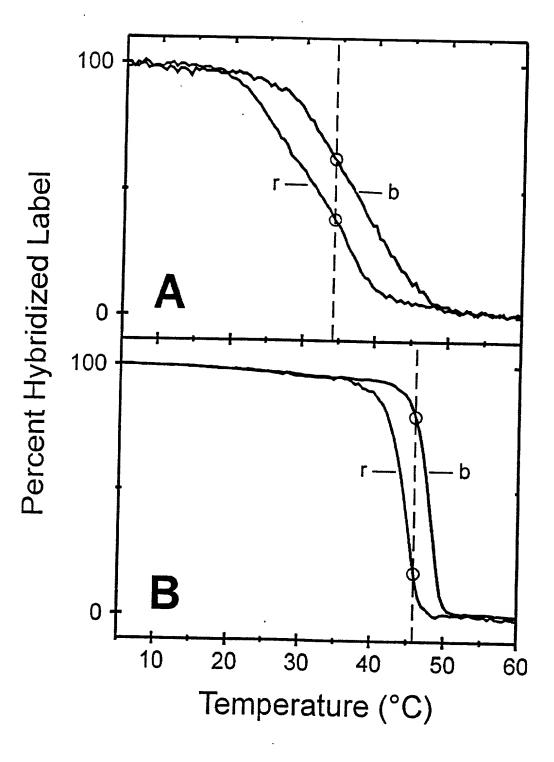
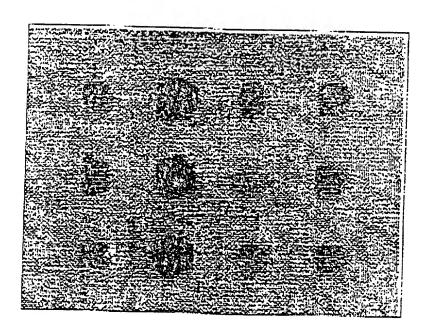
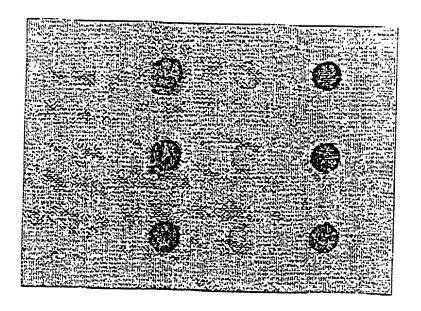


Figure 35

FIG. 360



F16.36B



C 🛕 T G

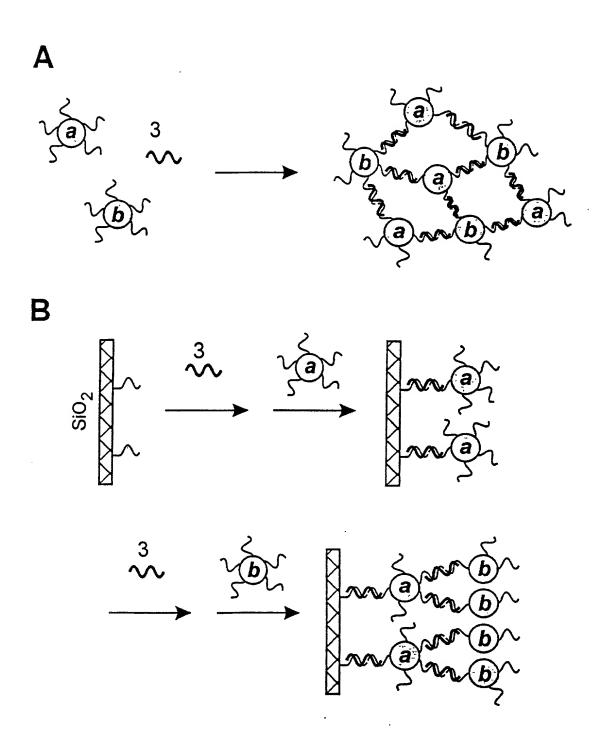


Figure 37

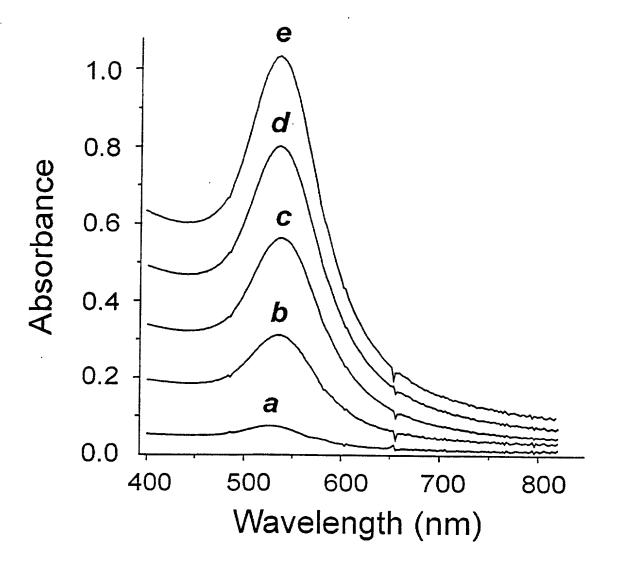


Figure 38A

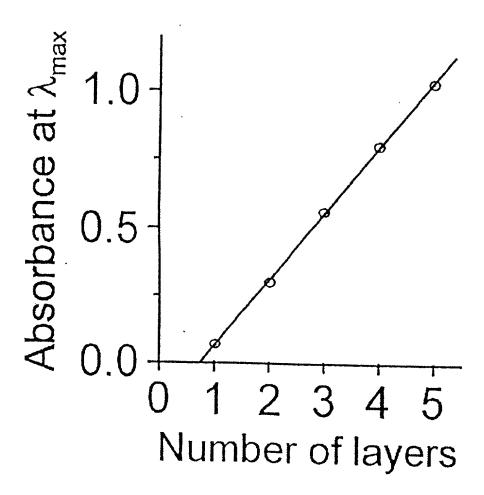


Figure 38B

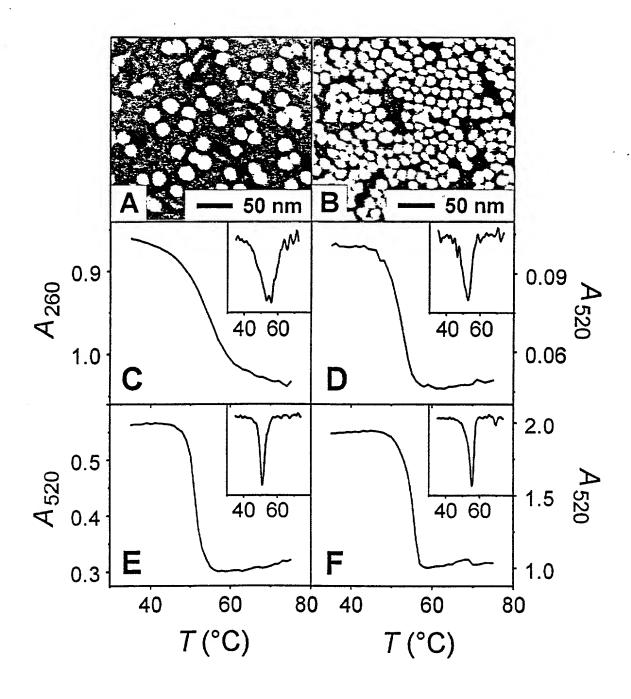
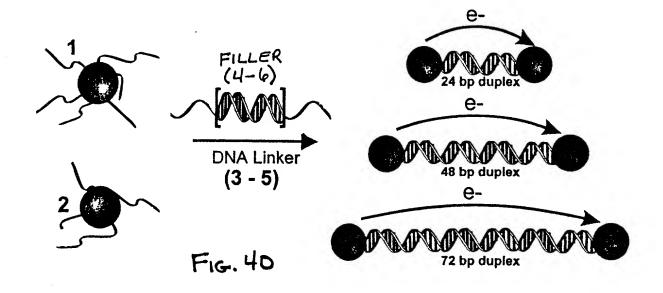


Figure 39



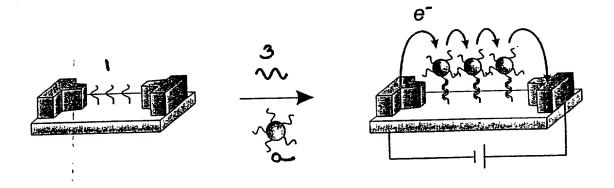


FIG. 41